

CATALYST COMPOSITION AND METHOD FOR OXIDIZING MIXTURES**ABSTRACT**

A catalyst composition and method for oxidizing fuels is disclosed. The catalyst composition comprises at least one compound having one of a group III, group IIA or Lanthanide element such as, for example, Aluminum, Magnesium or Cesium, and at least one compound having at least one element selected from group IA, group IVA, group VI, group VII, group VIII, group IB, group IIB, and combinations thereof, such as, for example platinum, rhodium and rhenium. A method for oxidizing a fuel, the method comprising providing a fuel and a catalyst mixture; transporting the fuel and the catalyst to the flame zone separately; mixing the fuel and the catalyst; and oxidizing the fuel. The method and catalyst mixture may be used for oxidation of any hydrocarbon based fuel. Improved results from the use of the group III, group IIA or Lanthanide group element include increased power, reduced harmful emissions, and smoother oxidation process.